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ABSTRACT

Florida's apprenticeship program was reviewed to assess its benefits and ability to meet state demands. The review was based on an analysis of the apprenticeship program's enrollment, costs, and course offerings and information about the employment and earning outcomes of program graduates. The review established that Florida's apprenticeship program benefits participating students because program completers earn higher wages than graduates of comparable adult vocational programs do. The program also benefits employers by filling regional demands for skilled labor. However, the program lacks a systematic approach to meeting Florida's statewide demand for skilled labor. Field representative service areas are not aligned with state workforce regions, and the program lacks guidelines for allocating funding to program sponsors. Limitations in the program's data system hinder its ability to provide information to stakeholders, and inaccurate and inconsistent reporting by local education entities undermines program administrators' ability to evaluate performance. It was recommended that the Florida Department work with local education agencies and program sponsors to develop guidelines for funding apprenticeship programs and to establish and maintain effective processes to ensure accessible, accurate performance and expenditure data. Florida's reported apprenticeship costs in fiscal 1999-2000 are appended along with the Florida Department of Education's response to the program review. (Contains 10 exhibits.) (MN)

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Program Review

June 2002 **Report No. 02-36**

Apprenticeship Program Is Beneficial, But Its Ability to Meet State Demands Is Limited

at a glance

Apprenticeship is a workforce development program in the Department of Education designed to meet Florida's demand for well-trained, experienced workers in skilled trades.

- The program also benefits participating students, since those who complete apprenticeships have a higher level of earnings than comparable adult vocational programs. The program also benefits participating employers by filling regional demand for skilled labor.
- However, the program lacks a systematic approach to meeting statewide demand for skilled labor. Field representative service areas are not aligned with state workforce regions, and the program lacks guidelines for allocating funding to program sponsors.
- Limitations in the program's data system hinder its ability to provide information to stakeholders. Also, inaccurate and inconsistent reporting by local education entities undermines program administrators' ability to evaluate performance.

Purpose

In accordance with state law, this report informs the Legislature about the current condition of the apprenticeship program. The report includes recommendations for improving the efficiency of the program, decreasing costs, improving the admissions process requirements, reducing the duration of training, and increasing the number of apprentices who successfully complete the program. [1]

Background

The apprenticeship program has a long history, both in Florida and nationally. The National Apprenticeship Act of 1937 authorized the U.S. Secretary of Labor to establish and register apprenticeship programs. [2] In 1977, when it became possible for states to register their own programs, Florida became 1 of 27 states to do so. [3] In 2000, the Legislature, intent upon strengthening the partnership between industry and Florida educators, transferred program oversight to the Department of Education.

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[1] Chapter 2000-165, *Laws of Florida*, Section 112.

[2] Code of Federal Regulations Pertaining to Labor Office of the Secretary of Labor Standards for the Registration of Apprenticeship, CFR Title 29 Chapter I, Part 29.1 Purpose and Scope.

[3] CFR Title 29 Chapter I, Part 29.12 – Recognition of State Registration.

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Registered apprenticeship programs are developed by industry to increase the supply of skilled labor. Apprenticeship programs are sponsored by an organization or a group of employers that identifies training needs. Working with an apprenticeship training representative, the sponsoring organization(s) develop program standards. These standards define the content and length of the program, the type of instruction required, the wage schedule, the admission requirements, and the selection process. Federal and state standards require all programs to include at least one year (2,000 hours) of on-the-job-training and 144 hours of technical instruction.[4] The majority of apprentices in Florida are enrolled in four-year programs.

Apprenticeship program standards outline specific employment and training requirements that are agreed to contractually.[5] Sponsors and apprentices sign an apprenticeship agreement that defines the expectations for apprentices and the responsibilities of employers. Program sponsors can provide technical instruction themselves or select a training partner, typically a school district or a community college, to assist in providing apprentices with related technical instruction. As the apprentice progresses, the employer provides periodic wage increases. After starting the apprentice at no less than 35% of a journey worker's wage, the employer periodically increases wages up to at least 75%. Upon successful completion of the program, the apprentice receives a certificate of completion. If they demonstrate the required level of competency by passing a basic skills test like the Test of Adult Basic Education, apprentices can earn both an apprenticeship certificate as well as a vocational certificate from the school district or community college.[6]

Although there are registered apprenticeship programs for many occupations, construction trade programs have the highest membership in Florida. As shown in Exhibit 1, seven of the top eight occupations employing apprentices are in construction trades. Electrician apprentices accounted for 34% of apprentices registered in Florida in August 2001. As of that date, there were 549 registered occupational programs. Of these, 336 programs currently train 9,393 apprentices. The remaining programs are registered but currently have no apprentices enrolled.

Apprenticeship programs are either joint (union) or non-joint (non-union) programs. Non-joint programs are sponsored by organizations that represent employers that do not participate in collective bargaining. Non-joint programs employed 63% of all registered apprentices in August 2001, while joint (union) programs employed 37% of the registered apprentices. (See Exhibit 1.)

Apprenticeship programs depend on a cooperative network of individuals and organizations. Although the Department of Education's Division of Workforce Development is responsible for registering apprenticeship programs in Florida, the division relies on advice from the State Apprenticeship Advisory Council and adheres to requirements from the U.S. Department of Labor. The U.S. Department of Labor Bureau of Apprenticeship and Training provides the use of a federal database, called the Apprenticeship Information Management System (AIMS), for tracking registered programs and apprentices.

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[4] Two thousand hours of on-the-job training is equivalent to one year.

[5] Chapter 38H-16 Apprenticeship Programs, *Florida Administrative Code*.

[6] Students who enroll in vocational programs at a school district or community college are required to complete an entry-level examination within the first six weeks of admission into the program [s. 239.213(2), *Florida Statutes*]. Although there are several test options, the Test of Adult Basic Education (TABE) is widely used by districts and community colleges to assess the reading, math, and writing levels of students beginning their coursework. The TABE is a three-part timed test that is given to all incoming students to determine whether they need remedial training.

Exhibit 1
Most Apprentices Are Registered in Non-Joint Construction Trades

Occupation	Joint	Non-Joint	Total	Percentage of Total
Electrician	936	2,239	3,175	34%
Plumber	301	728	1,029	11%
Pipefitter (construction)	505	304	809	9%
Heating and air-conditioning service	75	631	706	8%
Child care specialist	15	472	487	5%
Carpenter	253	116	369	4%
Structural-steel worker	354	2	356	4%
Sheet metal worker	231	116	347	4%
Other	851	1,264	2,115	23%
Total	3,521	5,872	9,393	100%

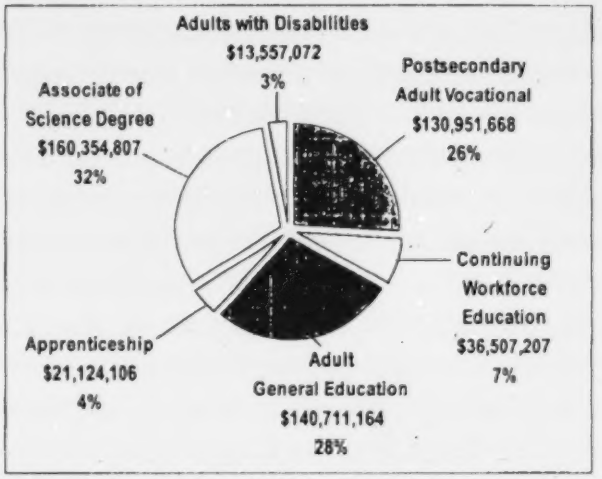
Note: Due to rounding percentages may total more than 100%.
Source: Apprenticeship Information Management System (AIMS) Reports, August 8, 2001.

Current Department of Education program staffing includes administrators and eight apprenticeship field representatives who promote, develop, monitor and service apprenticeship programs in the state.

The major state cost is funding the training partnerships entered into by program sponsors and school districts or community colleges. Currently, 24 of 67 school districts and 11 of 28 community colleges reported apprenticeship enrollment and expenditures. Reported school district expenses accounted for 67% of the total direct apprenticeship expenditures, while the community college programs accounted for 33%.

The state's reported direct costs for apprenticeship training in 2000-01 was $21,124,106 and represented 4% of Florida's total Workforce Development Education program expenditures in 2000-01. (See Exhibit 2.) There are additional costs borne by the sponsors and employers that are not reflected in Exhibit 2.

Exhibit 2
Apprenticeship Program Comprises Only 4% of Total Direct Cost of Workforce Education Programs



Sources: Cost Analysis Detail 2000-01, Florida Community Colleges; 2000-01 General and Special Revenue Fund Expenditures Report 2000-01, Florida Department of Education Division of Support Services, Office of Funding and Financial Reporting.

Findings

Apprenticeship program is beneficial

The apprenticeship program has benefited apprentices and employers alike by training technically competent journey workers in skilled trades.

- Apprenticeship graduates' initial earnings are almost as high as those of college graduates with an AS or BA degree.
- Apprentices command higher earnings than students completing other vocational programs that offer training in the same occupations.
- Apprenticeship program completion rates exceed completion rates for comparable adult vocational programs.

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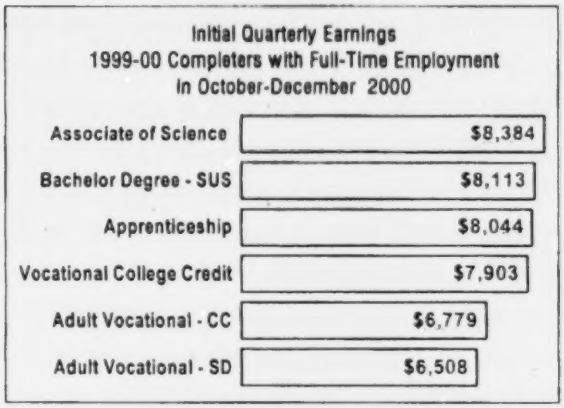
High initial earnings for apprenticeship completers

Annual reports from the Florida Education and Training Placement Information Program (FETPIP) indicate that the initial quarterly earnings of 1999-00 apprenticeship completers with full-time employment in October-December 2000 were comparable within 1% to the earnings of bachelor degree graduates and within 4% to the earnings of associate of science degree graduates.[7] (See Exhibit 3.) The initial quarterly earnings of apprenticeship completers were higher than for graduates of other postsecondary adult vocational workforce programs.[8]

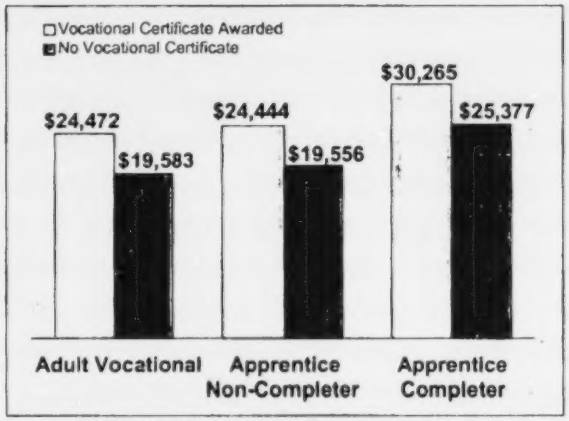
Exhibit 3
High Initial Earnings for Apprenticeship Completers



Source: *FETPIP, Annual Outcomes Report,* October 2001.

Overall, apprenticeship completers had higher earnings than students who completed comparable vocational education programs, even when factors such as differences in student pre-enrollment wages, regional differences, and varying demographic characteristics that influence earnings were taken into account.[9] (See Exhibit 4.)

Exhibit 4
Highest Earnings Go to Apprenticeship Completers With Vocational Certificate



Source: OPPAGA analysis of Department of Education and AIMS data on students who entered apprenticeship and post-secondary adult vocational workforce development programs in the 1995-96 school year.

Apprentices who successfully completed the apprenticeship program and also earned a vocational certificate received the highest earnings.[10] Our analysis indicates that students who received a vocational certificate typically earned approximately $5,000 more annually than students who did not receive the vocational certificate.

Apprentices have higher earning gains than students in comparable vocational programs

Students who participate in apprenticeship programs also have higher earning gains than students who participate in comparable

[7] FETPIP earnings information for October-December 2001 was not yet available at the time of this analysis.

[8] Although apprenticeship is included in the initial quarterly earnings data for the adult vocational programs, apprentices make up 10% of the post-secondary adult vocational programs, so the positive effect on earnings is relatively small.

[9] To determine the effect of enrolling in one program or the other, we adjusted post-completion earnings using an ordinary least squares regression analysis controlling for pre-employment wages, occupational wage category, workforce region, race, and age. Controlling for these variations in the student population ensures that the difference in earnings is due to the programs themselves, rather than to differences in the skills and work experience of the people entering the programs.

[10] Students who receive apprenticeship certificates must only pass the TABE test of basic skills in order to also receive an adult vocational certificate.

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vocational programs.[11] Our analysis of a cohort of all first-time students who entered either an apprenticeship program or a comparable adult vocational program in the fall of 1995 showed that by the end of a five-year period, students who completed either program increased their earnings.[12] However, students who completed apprenticeships had earnings that were higher than completers of comparable adult vocational programs.

Apprenticeship completers' median earnings were higher than those of students in comparable post-secondary vocational programs. The median annual earnings of apprentices prior to the year they joined the program was less than $10,000. By the first quarter of 2001, the median annual earnings had increased dramatically to $25,283 in higher wage occupations and to $21,185 in lower wage occupations.[13] (See Exhibit 5.)

Exhibit 5
Earnings Increase for Apprenticeship and Adult Vocational Program Completers

Occupational Category	Median Post Completions Earnings: Apprenticeship Program		Comparable Adult Vocational Programs	
Higher Wage	$25,283	*N=509*	$20,406	*n=5,466*
Lower Wage	21,185	*N=172*	14,537	*n=1,737*

Source: OPPAGA analysis of Department of Education and AIMS data on students who entered apprenticeship and post-secondary adult vocational workforce development programs in the 1995-96 school year.

There are several reasons why apprenticeship students tend to have better employment outcomes than students in other vocational education programs. First, apprenticeship students are more likely to complete their programs than those in comparable vocational programs. Our cohort analysis showed that 44% of the apprenticeship students completed their programs and earned a vocational certificate, apprenticeship certificate or both. This compares to only 18% of students enrolled in comparable adult vocational programs. (See Exhibit 6.) This was particularly true in apprenticeship programs for higher wage occupations; apprentices of these programs had a completion rate of 48% compared to a 13% rate in similar adult vocational programs, which suggests that the apprenticeship program may be better suited for training in these types of occupations than comparable adult vocational programs.

This higher completion rate among apprentices could stem from the fact that they are guaranteed employment and earn progressively higher wages as long as they participate in the program. Adult vocational students have no such guarantee. Apprentices thus can more easily afford to remain in longer programs, which yield higher earnings and advanced skills. (See Exhibit 6.)

Second, apprentices may have a higher chance of success than adult vocational students because they are more selectively chosen. Apprenticeship program sponsors define their own admission requirements, allowing them to

[11] The Department of Education provided us with a "crosswalk" of program codes (CIP codes) that corresponded to apprenticeship occupational codes. In our comparison, we only included students enrolled in a program with CIP codes that corresponded to an apprenticeship occupational code.

[12] Because most apprentices are enrolled in four- and five-year programs, the cohort that began in the 1995-96 school year was chosen to ensure that the students selected would have had adequate time to complete their programs.

[13] The most current earnings data available by DOE at the time of this analysis was first quarter earnings ending in March 2001. Occupations were classified as "higher" wage if the 1999 average annual wage for the occupation exceeded $13 an hour in the Florida Industry and Occupational Employment Projections to 2008, edition 2001. All other occupations were classified as "lower" wage occupations.

Lower wage occupations consisted of the following programs: Sheet Metal Fabrication Technician, Tile Setting, Commercial and Industrial Insulation, Roofing, Painting and Decorating, Emergency Medical Technician, Paramedic, Medical Secretarial, Landscape Operations, Sports and Recreational Turf Operation, Food Management Production and Services, Child Care Assisting, and Early Childhood Education.

Higher wage occupations consisted of the following programs: Electronic Technology, Electric Line Service/Repair, Marine Service Technology Marine Equipment, Fire Fighter, Heavy Duty Truck/Bus Mechanics, Auto Electrical/Electronic System Technician, Automotive Service Technology, Auto Collision Repair, Automotive Service Technology, Plumbing Technology, Heavy Equipment Operation, Plastering, Electricity, Structural Steel Work, Air Conditioning, Refrigeration and Heating Commercial Refrigeration Technician, Commercial Heating and A/C Technician.

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select participants who are most likely to succeed. For example, apprentices in a firefighter program are required to successfully complete six to eight weeks of preparatory training at a fire academy before they are considered for admission. Many childcare development programs require that an apprentice be working as a childcare worker before being admitted into the program. By contrast, adult vocational programs do not have these types of admission limitations.

Exhibit 6
Higher Percentage of Apprentices Complete Their Programs and Earn Certificates [1]

Occupational Category	Apprentices Completion Rates		Adult Vocational Completion Rates	
All Participants	44%	*n=826*	18%	*n=9,934*
Higher Wage	48%	*n=605*	13%	*n=7,492*
Lower Wage	34%	*n=221*	32%	*n=2,442*

[1] The typical length of programs in the higher wage category is four to five years, while in the lower wage category the length is two to three years. The cohort completion rate was calculated by dividing the number of students reported to have earned the Department of Education vocational certificate or the apprenticeship certificate or both divided by the total number of students enrolled in the program during 1995-96. The "n" represents the total number of students with data available who were enrolled in the program category.
Source: OPPAGA analysis of Department of Education and AIMS data on students who entered apprenticeship and post-secondary adult vocational workforce development programs in the 1995-96 school year.

In analyzing the effect of program length on completion rates, we found that two-year and five-year programs had the highest completion rates at 49% and 41%, respectively. Completion rates for four-, three- and one-year programs were approximately the same at around 32%. [14] From 1990 to 2000, of the 15,236 apprentices who were enrolled in the program, 31% left for unknown reasons, 22% were cancelled for unsatisfactory performance, 12% voluntarily quit, and 10% left to accept other employment. The remaining 25% left for a variety of other reasons.

Apprentices who were given credit for previous experience and/or training and those who participated in a union program had higher completion rates, regardless of program length. For example, the high completion rates in five-year programs can be explained in part by the fact that these programs are predominantly union programs. Currently, 22% of all registered apprentices are participating in a five-year program, and of those, 86% are affiliated with a union. (See Exhibit 7.)

Exhibit 7
Participation Highest in Four- and Five-Year Apprenticeship Programs

Apprenticeship Programs and Participation		
Program Length	Number of Apprentices	Percentage of Apprentices
2-Year	547	6%
3-Year	820	9%
4-Year	5,750	61%
5-Year	2,074	22%
Other	202	2%
Total	9,393	100%

Source: Apprenticeship Information Management System Reports, August 8, 2001.

Because union programs pay higher wages, apprentices in union programs have a greater incentive to complete their training. Our cohort analysis showed that pre-employment and estimated annual earnings of union program completers were higher than for non-union completers. The median pre-employment annual earnings of apprentices registered in non-union programs in the 1995-96 cohort was $6,617, compared to $8,646 for those in union programs. By the end of the first quarter of 2001, when their programs were completed, the median annual earnings of completers in union programs was typically higher than that of non-union completers.

[14] This analysis was based on AIMS historical data (1990-00). The data set included apprentice records whose status was completed or canceled and does not include apprentices with a status of registered. We limited the data in this way to focus on outcomes and to remove the possibility of including records whose statuses had not been updated in the completion rate calculation.

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Exhibit 8
Median Earnings Highest for Completers of Union Programs

	Median Post-Completions Earnings			
	Completers		Non-Completers	
Non-Union	$28,154	*n=115*	$23,147	*n=283*
Union	35,003	*n= 90*	19,419	*n=129*

Source: OPPAGA analysis of Department of Education and AIMS data on students who entered apprenticeship and post-secondary adult vocational workforce development programs in the 1995-96 school year.

Program benefits employers in which apprenticeable occupations are in demand

The apprenticeship program benefits employers as well as students, because it helps to supply skilled workers who also have experience in the workforce. In a recent survey of Florida employers, participants reported that they wanted to increase the number of apprenticeship programs offered. [15]

Employers indicated that apprenticeship programs provide the hands-on experience that employees need to be able to solve actual work problems. Those surveyed felt that the classroom setting was not sufficient to expose students to real-life work situations. Survey participants included employers such as building contractors, hotel and restaurant managers, emergency medical personnel, and childcare service providers.

The program's ability to meet statewide need is limited

The apprenticeship program's ability to meet statewide demand is limited by several unresolved issues. [16] Specifically,

- the apprenticeship program has no systematic approach to meet statewide demand for skilled labor in high-demand occupations;
- the program has not aligned its field representative's service areas with the state's workforce development regions;
- the program lacks systematic guidelines for allocating funding to program sponsors;
- limitations in the program's data system hinder its ability to provide information to stakeholders; and
- inaccurate and inconsistent reporting by local education entities undermines program administrator's ability to evaluate performance.

Program lacks a systematic approach to meet statewide demand for skilled labor

Occupational demand projections show a growing need for skilled employees. However, the apprenticeship program has not developed a strategy for targeting the expansion of apprenticeship programs to workforce regions in which demand exists but programs do not. [17]

Expansion strategies to meet projected demand for labor in apprenticeable occupations are not part of the program's draft Strategic Plan for Fiscal Year 2001-02. Because the program does not incorporate projections of occupational demand in its marketing strategy, pockets of unfilled demand exist throughout the state.

Apprenticeable occupations are among the growing occupations announced by the Agency for Workforce Innovation. The targeted occupations list includes jobs that are projected to grow faster than average (22.89% between 1998 and 2008) and have an average of 50 average annual permanent openings annually. [18] In the targeted occupations list are five high-demand apprenticeable occupations including electricians, plumbers, pipe fitters, heating and air conditioning service workers, and carpenters. Florida industry and

[15] *Florida Department of Education Workforce Development Education Program*, OPPAGA Report No. 01-56, November 2001, page 26.

[16] To identify these issues, from April to December of 2001, we reviewed program data and interviewed apprenticeship stakeholders, including union and non-union sponsors, employers, apprentices, apprenticeship administrators and staff, SAC members, local education agency apprenticeship coordinators and federal apprenticeship representatives.

[17] *Florida Industry and Occupational Employment Projections to 2008*, Office of Workforce Information Services, Labor Market Statistics, Agency for Workforce Innovation, 2001 Edition.

[18] *Targeted Occupation List 2002-2003 - Report 1*, 2001-02 Workforce Estimating Conference, February 2001.

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occupational projections indicate that the above occupations will have statewide demand in the next five years.

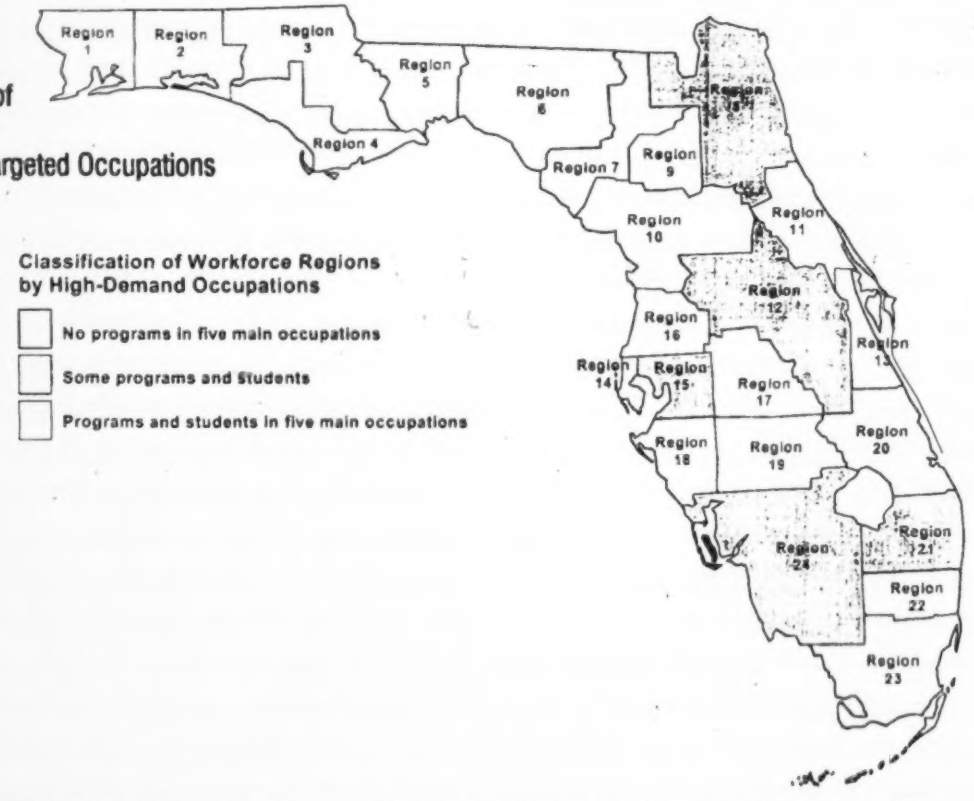
Exhibit 9 illustrates that demand for apprenticeship training in these occupations is not being met statewide. Four of the 24 workforce regions have no apprenticeship training programs in any of these five high-demand occupations, while 14 regions have apprenticeship programs in some but not all of these occupations. Only five regions have apprenticeship programs for each of the occupations.

Field representative service areas are not aligned with state workforce regions

Not aligning the apprenticeship field representative's service areas with the 24 workforce development regions also hinders program expansion. Currently, the apprenticeship program has nine service regions that overlap the state's 24 workforce development regions. For example, Flagler and Volusia counties make up Workforce Region 11, while the apprenticeship program has these two counties in two separate service areas. Aligning apprenticeship service areas with workforce regions would

- improve efficiency by providing more effective communication with regional workforce boards, workforce development agencies, and local education agencies;
- streamline information exchange between program staff and regional workforce development boards;
- refine the program's ability to target occupational demand, which is organized by workforce region; and
- increase opportunities to promote apprenticeship programs through the One Stop Delivery Systems that are aligned with the 24 workforce regions.

Exhibit 9
Regional Availability of Active Programs for Five High-Demand Targeted Occupations



Source: Department of Education, Division of Workforce Development, Apprenticeship Information Management System, August 2001.

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The program lacks guidelines for allocating funding to program sponsors

Federal and state law requires that apprentices participate in related technical instruction. School districts and community colleges provide the majority of this instruction. These local education agencies receive funding from the state under a uniform system that is 85% based on the previous year's funding and 15% based on performance. [19]

While the state funding system uniformly provides funding to local education agencies, no guidelines are established by which local education agencies can equitably apportion funds to program sponsors who provide classroom instruction. This is complicated by the fact that the level of training provided by the local education agencies and program sponsors varies widely based on the needs of individual sponsors. Some community colleges and school districts provide most or all of the classroom training resources for apprentices, including instructors, materials, and classroom space. However, in other areas, the local education agency provides only classroom space, while the program sponsor provides the instructors and materials.

Our analysis of apprenticeship agreements between program sponsors and local education agencies showed that there is substantial variation in funding allocations and services provided by local education agencies. In some cases, programs receive funding assistance from a local education agency and also use the local education agency's facilities for related technical instruction. Currently, 62% of currently enrolled apprentices are in these programs. Another 35% are enrolled in programs that receive funding assistance from the local education agencies and use the program sponsor's facility for related technical instruction. The remaining 3% are trained in programs that use their own training facilities and receive no funding assistance from local education agencies.

Individual local education agencies negotiate funding levels with the apprenticeship program sponsors and thus the level of funding provided to apprenticeship programs varies. This leads to concern among established program sponsors who do not understand why similar programs may receive substantially different funding levels. In addition, because there are no clear guidelines as to what their financial obligations will be, it becomes more difficult for potential sponsors to evaluate whether or not the apprenticeship program is a viable training method.

In general, sponsors who reported receiving adequate support from their local education agency training partner also reported having good working relationships. Conversely, sponsors who reported having insufficient support were dissatisfied with services provided by the local educational agency. Sponsors who were dissatisfied were limited in their choices of training partners. There are a limited number of local education agencies within a reasonable distance with which local sponsors can negotiate an agreement; if they are dissatisfied with their working relationship with the local educational agency's program, sponsors seek new training partnerships or simply drop out of the program.

Variability in Reported Training Costs Make It Difficult to Evaluate Performance

The differences in local funding agreements and local education agencies' flexibility to use funding as needed for their institutions contribute to wide variation in the program costs reported by community colleges and school districts. Appendix A illustrates the variation in training costs among institutions. For example, the direct program costs per apprentice ranged from $144 reported by Tallahassee Community College to $5,676 reported by St. John's County School District.

In addition, local education agencies do not currently report expenditures to show cost

[19] See *Florida Department of Education Workforce Development Education Program*, OPPAGA Report No. 01-56, November 2001 for a more detailed discussion of Workforce Development Funding.

categories that easily identify high-, medium-, and low-cost programs in accordance with state regulations (s. 239.115(4)(a), *Florida Statutes*). According to law, the cost analysis used to calculate and assign a program of study to a cost category must include at least both direct and indirect instructional costs, consumable supplies, equipment, and standard program length. However, currently, program length is used as a proxy to estimate cost because cost data is not reported by program.

Limitations in the program's data system hinder its ability to provide information to stakeholders

The apprenticeship program's data system does not provide adequate summary reports to support local programs. The program uses the Apprenticeship Information Management System (AIMS) application, which is provided at no cost by the U.S. Department of Labor, to collect and report program data. While this system maintains a great deal of information, it was not designed to readily report on the various types of apprenticeship programs. For example, it does not organize the data by occupation (e.g., plumbers, electricians, carpenters) or provide detailed reports of individual programs.

To obtain special reports, program administrators in Florida must submit data requests to the U.S. Department of Labor. These requests are placed in a queue and are answered at the discretion of federal program administrators, which can result in long delays.[20] As a result, program sponsors lack information on critical factors such as completion rates for similar programs or program trends over time. This lack of clear information contributes to misconceptions among existing sponsors about program effectiveness. It may also discourage new sponsors from participation, and it could hinder further expansion of the program.

The AIMS federal database had not been kept current before oversight of the database was assigned to the Florida Department of Education. For example, we found that AIMS program data regarding wage schedules, related technical instruction providers, and program status had not been properly maintained. Now that the Florida Department of Education oversees the program, maintenance of the AIMS data has improved. Records are being updated to reflect current status, and the Department of Education is working with AIMS programmers in their efforts to upgrade the database application.

However, the apprenticeship program has not yet developed a process that will enable sponsors to easily verify the data or to reconcile enrollments with Department of Education data. The process currently requires local education agencies to report the number of apprentices that are enrolled in registered programs to the Department of Education. Since performance funding is based on what is reported by the local education agencies, the Department of Education is careful to ensure that apprenticeship information is correct. To achieve this, the Apprenticeship Section must manually verify that the apprenticeship programs submitted by local education agencies are actually registered apprenticeship programs. This is a time consuming, expensive process. Automating this process would result in improved accuracy and provide accountability and make the process less labor intensive.

Inaccurate and inconsistent reporting by local education entities undermines program administrators' ability to evaluate performance

The performance funding system is intended to help the apprenticeship program meet statewide demand by rewarding local education agencies for satisfying the demand for trained

[20] OPPAGA, through DOE's Division of Workforce Development, requested updated AIMS data in order to compare Florida to other states, but because the U.S. Department of Labor is overhauling the AIMS application, they were unable to satisfy our request for use in this report.

workers. However, inaccurate reporting of occupational completion points (OCPs) by local education agencies (community colleges and school districts) weakens administrators' ability to evaluate performance.

Occupational completion points reported by local education agencies are based on student performance. When apprentices meet performance expectations by completing a sequence of coursework that demonstrates mastery of a specific skill set, their local education agency receives points that are used to determine the share of performance funds it will receive.[21] For example, in Fiscal Year 1999-00, apprentices earned approximately $3,496,328 in performance funds for local education agencies statewide. Although performance funding to local education agencies is based on OCP completions, these agencies' payments to sponsors are not based on OCPs.

Local education agencies report the number of OCPs earned by apprentices and other workforce programs to the Department of Education. The department audits the OCPs claimed by the local education agencies to ensure that only valid occupational completion points are funded. The department will reject claimed OCPs if they have not been correctly identified as being linked to the apprenticeship program, have already been counted, or are out of sequence relative to the student's prior performance.

The Department of Education rejected 22% of the OCPs reported by local education agencies in 1999-00. Our analysis of the number of OCPs reported by local education agencies compared to the number that were funded showed that 7 of the 11 community colleges participating in apprenticeship partnerships reported more occupational completion points than they were eligible to receive funding for, as did 18 of the 24 school districts. (See Exhibit 10.) Although the Department of Education funded only 78% of the reported OCPs, local education agencies did not challenge the department's funding decisions.

Inaccurate reporting weakens program administrators' ability to evaluate performance. While the department's audits detect many errors in reported OCPs, the reporting inaccuracies contribute to the program sponsors uncertainties regarding the equitable distribution of program funds. It also provides no incentive for program sponsors to foster completion.

Several factors contribute to the perpetuation of inaccurate reporting. First, according to state administrators, many local education agencies do not have a person who is held accountable for reviewing the data. Second, there are no incentives for sponsors to verify the accuracy of the data. Third, an error rate standard has not been established, and no penalties are levied against local education agencies that misreport.

By developing a review process that assigns the auditing responsibility to a single individual, local education agencies can improve reporting accuracy by holding a specific individual accountable for verifying OCP counts. Requiring sponsors and local education agencies to review and report on OCPs would help improve the quality of data submitted to the Department of Education. Establishing an acceptable error rate for data submitted to the Department of Education would provide the department a tool to use when working with local education agencies to correct data submitted.

[21] These are categorized as occupational completion points (OCPs), literacy completion points (LCPs) and placement points for placement high skill/high wage jobs. See *Florida Department of Education Workforce Development Education Program*, OPPAGA Report No. 01-56, November 2001, Appendix C, for a more detailed discussion of completion points.

Exhibit 10
DOE Funded 22% Fewer OCPs Than Community Colleges and School Districts Report

	Reported OCPs 1999-00	Funded OCPs 1999-00
Community College (CC)		
Brevard	139	130
Daytona Beach	185	160
Florida CC at Jacksonville[1]	291	22
Gulf Coast	0	0
Indian River	106	98
Palm Beach [1]	173	422
St. Johns River	80	80
Santa Fe	122	113
Seminole	294	273
South Florida	21	21
Tallahassee	32	31
Community College Total	1,443	1,350
School District		
Alachua	0	0
Bay[1]	4	0
Broward	880	656
Citrus	8	8
Collier	102	56
Miami-Dade	545	479
Escambia	96	80
Flagler	76	73
Hillsborough	709	643
Lake	85	76
Lee	388	352
Leon	10	8
Manatee	211	208
Marion	22	22
Martin[1]	9	0
Orange	1,241	1,051
Osceola	104	104
Palm Beach[1]	828	0
Pasco	89	89
Pinellas	685	649
Polk	111	67
St. Johns	25	25
Santa Rosa	108	57
Sarasota	274	265
School District Total [2]	6,610	4,968
Combined Total	8,053	6,318

[1] See Appendix A endnotes.
[2] Consolidated OCPs 1999-00.
Source: DOE Community College enrollment data 1999-00; DOE Performance Funding Data 2001-02.

Program length and admission requirements can be changed

Florida Statutes required this examination to consider two questions: whether adjustments can be made to the length of apprenticeship programs, and how program admission requirements are determined. [22]

Adjustments can be made to the length of programs

The program has established procedures for changing the length of apprenticeships, and program sponsors have used these procedures to modify programs and to improve curriculum. For example, some sponsors of four-year electrician programs added a fifth year to train apprentices in new technologies such as digital logic. Approximately 34% of apprentices enrolled in August 2001 were in programs that require a longer training period than recommended for the same apprenticeable occupation recognized as the national standard for apprenticeable occupations. [23] In other cases, such as the St. Petersburg firefighter program, the length of apprenticeships has been shortened from four to three years to improve completion rates.

Although sponsors define program length in the standards, the ultimate authority to register or deregister programs lies with the state's Division of Workforce Development. If program standards are submitted for registration with a program length that differs from the length recommended by the national industry standard, the division has the option of not registering the program. Through established quality assurance procedures, the division also has the authority to review the program length of existing programs.

[22] Chapter 2000-165, *Laws of Florida*, Section 112.

[23] Approximated from AIMS database, August 2001, DOE. National standards are standards that were created by a national organization such as a trade union or other professional organization. These standards are accepted nationally as the authority of those skills and training needed for an apprenticeship on the job. National standards are updated on a regular basis.

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Another method of shortening the length of programs on an individual basis is to give credit to apprentices with prior training and experience. Allowing credit for either classroom training or on-the-job experience has a number of benefits. Credit reduces the length of the program for the apprentice, thus reducing the cost to the program. Our analysis indicated that students who received credit for prior education and work experience were more likely to complete the program. Providing the maximum amount of credit when warranted is likely to reduce costs and improve performance.

Program sponsors define current admission requirements

Apprenticeship admission requirements and the selection process vary by program. However, all apprentices must be at least 16 years of age and be physically capable of doing the job. Apprenticeship admission requirements vary by program. For example, electrician apprentices may be required to demonstrate competency in math before they are admitted. Some programs require applicants to complete a medical questionnaire; pass a drug test; provide proof of prior residency in Florida for at least three months; and demonstrate ability to read and write English.

Admission requirements that allow programs to be more selective tend to improve completion rates by eliminating applicants who cannot meet program standards. Although sponsors define admission requirements in the program standards, federal law requires them to be job-related.

Recommendations

We recommend that the Florida Department of Education, local education agencies, and program sponsors work together to develop guidelines for funding apprenticeship agreements. This will help provide consistency and predictability in funding new and existing programs, increase accountability in reporting, and provide incentives to increase the number of apprentices who attain completion milestones. The guidelines should address the areas discussed below.

- **Allocation of funding between apprenticeship sponsors and local education agencies.** Local education agencies should allocate state funding between the local education agencies and apprenticeship sponsors based on the portion of training each provides, and the actual cost of the services provided. The local apprenticeship agreements should specifically contain the allocation. Basing local agreements on training costs per apprentice would provide new and existing programs with a consistent way of predicting their training costs.
- **Provision of performance incentives to sponsors.** Local education agencies should allocate a portion of available funds to apprenticeship program sponsors based on the number of funded OCPs they generate and their contribution to the training effort. Providing incentives to sponsors based on program performance data would help improve data accuracy and encourage increases in completion rates.

We recommend that the Department of Education work with local education agencies and sponsors to establish and maintain effective processes to ensure accessible, accurate performance and expenditure data. These processes should ensure the criteria below.

- Specific individuals are accountable for accurate reporting at each local education agency.
- Performance data is available by program and used to
  - measure how well the program is meeting regional occupational demand for skilled workers and
  - indicate the number and percentage of apprentices who register for programs that actually finish.
- Cost information is accurate and can be used to establish a basis of comparison to determine the "reasonableness" of the costs

reported by individual local education agencies.

- Apprenticeship data systems are linked and designed to eliminate duplication in data entry.
- The AIMS applications are enhanced to enable program administrators to access information, import and export information, and generate needed reports.
- Communication is improved by providing regular reports to inform apprenticeship sponsors, employers and training coordinators of changes in the status of their programs, the progress of apprentices enrolled in their programs, and the costs associated with training apprentices, which enables them to verify the accuracy of the information.

We recommend that the Department of Education promote apprenticeship programs through the activities below.

- Align field representative service areas to coincide with the 24 workforce development regions.
- Work with local education agencies and regional workforce board members to identify employers that could be potential apprenticeship sponsors and develop strategies to fill regional demand for apprentices in targeted occupations.
- Work with local education agencies and other stakeholders including the Agency of Workforce Innovation, Workforce Florida, Inc., and regional workforce boards to develop strategies to expand apprenticeship opportunities to employers statewide.
- Promote the apprenticeship program by making regular progress reports to regional workforce boards that describe how well the programs in their region are meeting the occupational demand for skilled labor.

In addition, we recommend that the Department of Education improve program performance and reduce program costs by developing and implementing strategies to improve completion rates.

- Program staff should work with sponsors to examine each program's policies and procedures for awarding prior credit, as this is strongly correlated to successful completion.

Agency Response

The Commissioner of Education and the Secretary of the Department of Education provided a written response to our preliminary and tentative findings and recommendations. (See Appendix B, page 16, for their response.)

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Appendix A

Reported Apprenticeship Costs, Fiscal Year 1999-00

Workforce Region	Community College / School District	Head Count[5]	Funded OCPs	Reported Direct Program Costs	Reported Total Program Costs	Average Direct Cost Per Enrollment	Average Total Cost Per Enrollment	Average Direct Cost Per Funded OCP	Average Total Cost Per Funded OCP
	Community College (CC)								
13	Brevard CC	439	130	$1,033,350	$2,237,715	$2,354	$ 5,097	$ 7,949	$17,213
11	Daytona Beach CC	339	160	496,597	1,903,347	1,465	5,615	3,104	11,896
20	Indian River CC	360	98	290,993	1,102,910	808	3,064	2,969	11,254
8	Florida CC at Jacksonville[1]	932	581	702,770	6,347,657	754	6,811	1,210	10,925
12	Seminole CC	716	273	424,685	2,644,945	593	3,694	1,556	9,688
8	Saint Johns River CC	144	80	238,317	676,156	1,655	4,696	2,979	8,452
21	Palm Beach CC[4]	855	422	2,282,576	3,484,466	2,670	4,075	5,409	8,257
19	South Florida CC	37	21	25,413	137,452	687	3,715	1,210	6,545
9	Santa Fe CC	197	113	114,160	503,424	579	2,555	1,010	4,455
5	Tallahassee CC	50	31	7,217	63,057	144	1,261	233	2,034
4	Gulf Coast CC	41	---	14,809	66,959	361	1,633	---	---
	Total	**4,110**	**1,909**	**$5,630,887**	**$19,168,088**	**$1,370**	**$ 4,664**	**$ 2,950**	**$10,041**
	School District								
8	St. Johns	72	25	$408,704	$835,522	$5,676	$11,604	$16,348	$33,421
17	Polk	237	67	630,852	1,169,319	2,662	4,934	9,416	17,453
12	Osceola	144	104	406,788	857,552	2,825	5,955	3,911	8,246
12	Lake	125	76	316,671	549,416	2,533	4,395	4,167	7,229
11	Flagler	138	73	295,180	520,505	2,139	3,772	4,044	7,130
24	Collier	256	56	214,404	380,204	838	1,485	3,829	6,789
18	Sarasota	337	265	653,040	1,708,570	1,938	5,070	2,464	6,447
12	Orange	1,624	1,051	2,017,147	6,326,423	1,242	3,896	1,919	6,019
22	Broward	1,698	656	1,891,302	3,810,819	1,114	2,244	2,883	5,809
18	Manatee	251	208	649,092	1,175,673	2,586	4,684	3,121	5,652
10	Marion	33	22	72,923	115,024	2,210	3,486	3,315	5,228
14	Pinellas	1,146	649	2,031,928	3,106,966	1,773	2,711	3,131	4,787
24	Lee	561	352	972,411	1,635,417	1,733	2,915	2,763	4,646
1	Escambia	135	80	225,919	369,802	1,673	2,739	2,824	4,623
5	Leon	36	8	18,414	29,343	512	815	2,302	3,668
16	Pasco	114	89	110,047	274,578	965	2,409	1,236	3,085
15	Hillsborough	1,283	643	1,140,331	1,758,031	889	1,370	1,773	2,734
10	Citrus	32	8	4,589	20,678	143	646	574	2,585
1	Santa Rosa	95	57	65,093	131,130	685	1,380	1,142	2,301
23	Dade	948	479	373,148	737,165	394	778	779	1,539
21	Palm Beach[4]	724	0	710,762	941,542	982	1,300	---	---
20	Martin [3]	42	0	27,427	28,487	653	678	---	---
4	Bay [2]	22	0	14,381	14,381	654	654	---	---
9	Alachua	28	0	12,250	18,572	438	663	---	---
	Total	**10,081**	**4,968**	**$13,262,803**	**$26,515,119**	**$1,316**	**$2,630**	**$2,670**	**$5,337**
	Grand Total	**14,191**	**6,877**	**$18,893,690**	**$45,683,207**	**$1,331**	**$3,219**	**$2,747**	**$6,643**

[1] Adjusted Funded OCP Count, November 21, 2001, letter from college president.

[2] Salaries of teachers were reported incorrectly and appropriate adjustments were made to Reported Direct and Total Program costs, December 19, 2001, Office of Funding and Financial Reporting, DOE.

[3] Martin County vocational programs are in the process of transferring apprenticeship training from local vocational technical centers to the Indian River Community College.

[4] Palm Beach vocational programs are in the process of transferring apprenticeship training from local vocational technical centers to the Palm Beach Community College. Therefore, the funded OCPs for the Palm Beach School District were transferred to the Palm Beach Community College.

[5] Headcount is defined as an unduplicated count of apprentices either participating in classroom instruction or OJT as reported in cost code 370.

Source: DOE Workforce Education and Outcome Information Services Apprenticeship FTEs and Head Count per FTE by District 1999-00; DOE LCP-FTE Comparison (1999-00 data) Apprenticeship; Community College 1999-2000 Detail Cost Analysis Report; General Fund Expenditures Report, Florida Department of Education.

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Appendix B

Department of Education Response to OPPAGA Program Review of the Apprenticeship Program

Thank you for providing such a detailed report on the status of our apprenticeship program. Overall, the report is very positive and describes the program as a worthy and important process for addressing the state's workforce demands. However, there are a few areas that we think warrant responses.

Funding

The Department of Education concurs with OPPAGA's recommendation concerning the need to continue to work with local educational agencies and program sponsors to develop guidelines for funding apprenticeship agreements; however, this has been difficult because of the very nature of the apprenticeship programs. As true industry driven programs, the apprenticeship committee enters into agreements with local educational agencies regarding the provision of related educational services, on-the-job training or both. These agreements are based on services provided by each party and thus have a wide degree of variability.

Delivering or establishing a statewide agreement would eliminate the flexibility needed at the local level. The Department believes this local flexibility to be important and feels that the conditions and amounts in the agreement should be left up to the discretion of the sponsors and the local educational agencies.

While Section 239.115, Florida Statutes, provides that performance funding is to be used in the determination of the appropriation that school districts and community college receive, it does not direct how the funds are to be expended once received by the local educational agency. To compound the issue, school districts and community colleges that build performance into their local agreements are faced with a major dilemma when the Legislature elects to allocate funds on a method other than performance.

Data Collection

The management information system for the apprenticeship program was developed and is maintained by the U.S. Department of Labor. The system has deficiencies in a number of areas and accessing or requesting certain types of information has been difficult.

Upon receiving the apprenticeship section, the Department of Education recognized the need for an improved tracking system. The Division immediately began to identify ways in which the data could be more accurately entered, retrieved and analyzed.

During this current fiscal year, the U.S. Department of Labor has released a newer version of its data collection system. The Florida Department of Education was actively involved with the federal government in developing the system. The relationship was born out of the Department's desire to ensure that the system would not only be user friendly but the data elements included in the system would address the needs of the state. The Department will continue to strive to provide needed information to program sponsors and local educational agencies.

Statewide Demand

The Division recognizes the need to increase the number of programs and participants, and has made this an objective of the program's strategic plan. However, this program is primarily industry driven and the decision to start a program and where to start a program is ultimately decided by the local apprenticeship committees.

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